

their breeding ranges, their nesting habits, and their food. In many cases, in respect to materials, as in the case of well-known species, there is an embarrassment of riches, and the question is what to select and how much is really worthy of reproduction. In many cases, however, it is far otherwise, and the striking feature of Captain Bendire's work is the amount of wholly new material it contains, drawn either from his many years of personal experience in the field, largely in comparatively unknown portions of the Far West, or from the letters of his many correspondents in all parts of the country. Much of this original information has evidently been especially solicited for the present work.

Captain Bendire's style is simple and direct, with no attempt at embellishment or literary effect, but this is more than compensated by the care and thoroughness with which every aspect of the subject is presented. Doubtless there are some deficiencies of detail that might have been remedied, but as a whole the book is eminently satisfactory as a compendium of the subject of which it treats. It is unencumbered with tables of synonymy and bibliographical references, although due credit is given in foot notes to the sources from which previously published information has been drawn. In his official capacity as Curator of the Department of Oölogy in the United States National Museum, recently so greatly enriched by his own unrivalled collection, he has had the fullest access to abundant material, which, however, he has been able to supplement when necessary by that of scores of willing collaborators in the same field. The illustrations are on a liberal scale, and in execution are above criticism. It is perhaps safe to say that they are the best egg plates, taking the series as a whole, ever produced, at least in this country and probably anywhere.—J. A. A.

Ridgway's 'The Humming Birds.\*'—Under this title Mr. Ridgway has made a most welcome contribution to the literature of this fascinating group of birds, giving as it does a general account of their structure and habits, and a detailed account of the species met with in the North American fauna, as limited in the A. O. U. Check-List. He gives first a brief summary of the literary history of the group, extracted largely from Coues's well-known bibliography of the family, followed by remarks on 'Geographical Distribution' and 'Migrations.' Then follows an account of their 'Habits,' their general traits being discussed under the minor headings, 'Actions and Attitudes,' 'Manner of Flight,' 'Disposition,' 'Intelligence,' 'Nests and Eggs,' and 'Food,' the whole occupying about twenty pages. The nidification of Hummingbirds is illustrated by fourteen plates of nests, three of which are original and the rest from Gould. Under 'Characters and Relationships' are discussed their affinities to

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\* *The Humming Birds.* By Robert Ridgway, Curator, Department of Birds. Report of the U. S. National Museum for 1890, pp. 253-383, with pls. xliii and 47 cuts in the text. [July, 1892.]

other birds, this section including also a contribution on the anatomy of Hummingbirds by Mr. Frederic A. Lucas (pp. 290-294, pl. xv, and figs. 1-4). Under 'Variations' are described and profusely illustrated the wide range of external structure, as affecting the general size, the form and structure of the bill (figs. 5-14), the wing (figs. 15-25), and the tail (figs. 26-29, and pls. xvi-xxiv, in all 45 figures), and also the head and throat ornaments, etc., (Figs. 30-46, and pls. xxvi-xxxiv). By means of the copious illustrations a very good idea is conveyed of the very diverse forms of structure of bill, wings, tail, and head ornaments present in the various groups of this exceptionally numerous and diversified family. A few pages are given to 'Colors of the Plumage,' and 'Cause of the Changeable Hues of Humming Birds,' with brief descriptions of some of the more brilliantly colored species.

The last half of the paper (pp. 312-383) is devoted to 'Humming Birds of the United States.' These number seventeen species, of which only seven can be considered as characteristic of the region, the other ten either barely crossing our border or being of purely casual occurrence. The 'Key to the Genera' given, however, includes all of the genera found in Mexico, Cuba, and the Bahamas, as well as in the United States, being in fact an 'adaptation' of that given in the same author's 'Manual of North American Birds.' Uncolored original figures are given (pls. xxxv-xlvi) of thirteen of the species, including *Trochilus violajugulum* Jeffries, and *Selasphorus floresii* Gould, the former known only from the type, the other "accidental near San Francisco, California," and known only from this and one other specimen, the latter from Bolaños, Mexico.

Detailed descriptions are also given of several species wrongly attributed to North America, namely: *Lampornis nigricollis* (Vieill.), a South American species attributed to Florida by Audubon; *Atthis heloisa* (L. & DeL.), of Eastern Mexico, wrongly attributed to El Paso, Texas, through misidentification of a young example of *Stellula calliope*; and *Agyrtria tobaci* (Gm.), of northern South America, supposed (in all probability erroneously) to have been taken at Cambridge, Mass.

A vast amount of general information about Hummingbirds is thus brought together, in addition to an elaborate and very detailed account of those occurring north of the West Indies and Mexico, with some account of their nearest congeneric allies found in the contiguous regions to the southward.—J. A. A.

**Merriam on the Life Areas of North America.**—In his recent Presidential Address before the Biological Society of Washington Dr. Merriam\* resumes consideration of the geographic distribution of life in North America, a subject already treated by him at some length in 'North Amer-

\* The Geographic Distribution of Life in North America with Special Reference to the Mammalia. Annual Presidential Address, delivered at the Twelfth Anniversary Meeting of the Biological Society of Washington, February 6, 1892. By C. Hart Merriam, M. D. Proc. Biol. Soc. of Washington, Vol. VII, pp. 1-64, with map. April, 1892.